

meter resolution using a two standard deviation histogram stretch. Factors considered during this review included but were not limited to the presence of smoke and/or cloud cover, contrails, light conditions, sun glint and any sensor or hardware-related issues that potentially could result in faulty data. When necessary, image strips identified as not meeting image quality specifications were re-flown to obtain suitable imagery.

Aero triangulation blocks were defined primarily by order of acquisition and consisted of four to seventeen strips. Image tie points providing the observations for the least squares bundle adjustment were selected from the images using an auto correlation algorithm. Photogrammetric control points consisted of photo identifiable control points, collected using GPS field survey techniques. The control points were loaded in to a softcopy workstation and measured in the acquired image strips. A least squares bundle adjustment of image pass points, control points and the ABGPS was performed to develop an aero triangulation solution for each block using Pictovera software. Upon final bundle adjustment, the triangulated strips were ortho-rectified to the USGS NED DEM for the project area. A combination of 10-Meter and 30-Meter NED data purchased from USGS in 2005 was used for rectification. The images were re-sampled from the raw resolution of 0.7 meters to the required resolution of 1.0 meters.

Positional accuracy was reviewed in the rectified imagery by visually verifying the horizontal positioning of the known photo-identifiable survey locations using ArcGIS software.

The red, green, and blue bands were combined to generate a final ortho-rectified image strip. The ADS40 sensor collects twelve bit image data which requires radiometric adjustment for output in standard eight bit image channels. The ortho-rectified image strips were produced with the full 12 bit data range, allowing radiometric adjustment to 8 bit range to be performed on a strip by strip basis during the final mosaicking steps.

The imagery was mosaicked using manual seam line generation in Orthovista Seam Editor (OVSE). The 12 bit data range was adjusted for display in standard eight bit image channels by defining a piecewise histogram stretch using OrthoVista software. A constant stretch was defined for each image collection period, and then strip by strip adjustments were made as needed to account for changes in sun angle and azimuth during the collection period. Strip adjustments were also made to match the strips histograms as closely as possible to APFO specified histogram metrics and color balance requirements. Automated balancing algorithms were applied to account for bi-directional reflectance as a final step before the conversion to 8 bit data range.